IN THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF ILLINOIS EASTERN DIVISION

JOSEF A. KOHEN, BREAKWATER TRADING LLC, and RICHARD HERSHEY, Plaintiffs, v. PACIFIC INVESTMENT MANAGEMENT COMPANY LLC, and PIMCO FUNDS,))))) No. 05 C 4681) Judge Ronald A. Guzman) Magistrate Michael T. Mason))
Defendants.)))

AMENDMENT TO THE EXPERT REPORT OF DR. CRAIG PIRRONG

- In paragraph 62 of my report, the phrase "basis points" should be replaced by "32nds."
- 2. I hereby amend my report to state that the best estimate of damages is \$632 million rather than the \$612 million I originally reported. I make this amendment because I have determined that a volume weighted average of artificiality encompassing all trading hours is preferable to the volume weighted average encompassing only regular trading hours used in my original report. I make this determination because there are artificiality changes during these extended hours, and it is preferable to incorporate these into the analysis. Capturing these price changes improves the estimate of total damages.

- a. As indicated in paragraph 197 of my original report, the amount of artificiality paid by each class member can be determined by reference to the amount of artificiality prevailing around the time they transacted.
- b. Specifically, in my opinion, a reasonable and best method of determining the artificiality paid by any individual class member for purposes of claims administration is to: (i) determine the time at which the individual traded; (ii) take a weighted average of the artificiality implied by the minute-by-minute swap spread analysis described in my original report for a reasonable time interval centered around the time the individual traded, where the weight assigned to the artificiality in any minute when calculating this average is higher (lower) the closer (further) is that minute from the time of the trade.
- c. This averaging is a superior method of determining the damage suffered by any individual trader because, as set out in paragraph 196 of my report, high frequency transaction data are subject to some noise due to microstructure and data synchronicity effects, and averaging beneficially mitigates the impact of these effects.
- d. In particular, this method should employ a Gaussian kernel weighting scheme. Gaussian kernel weighting is widely used in the academic economic literature to analyze the type of data I utilize.
- e. In my opinion, the bandwidth of the kernel (which determines how rapidly
 the weight declines as one moves away from the central point in the
 averaging) should depend on whether a particular class member's trade
 occurred during regular trading hours or outside of these hours (when trading

activity is lower in all of the markets that provide the data necessary for the test.) In my opinion, a five-minute bandwidth is most reasonable during regular trading hours, and a fifteen-minute bandwidth is most reasonable outside regular trading hours. The basis for my opinion is that after a review of the data, I conclude microstructure effects and data synchronicity effects are less acute during regular trading hours than at other times. In particular, based on my review of the volume, trade frequency, and artificiality data, I conclude that the five minute and fifteen minute intervals are most

appropriate.

Craig Pirrons

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23 March, 2007